

WHAT IS CLAIMED IS:

1 1. A vehicle tire monitoring system for use with a wheel that is
2 configured to have a tire mounted thereon, the system comprising:

3 a sensor assembly mountable on the wheel, the sensor assembly
4 including a first sensor for detecting a tire parameter and a second sensor for
5 detecting proximity of the sensor assembly to the wheel based on the position of the
6 second sensor relative to the wheel.

1 2. The vehicle tire monitoring system of claim 1 wherein the
2 sensor assembly is disposed on the wheel using an adhesive.

1 3. The vehicle tire monitoring system of claim 1 wherein the first
2 and second sensors are mounted on a circuit board.

1 4. The vehicle tire monitoring system of claim 1 further
2 comprising a protective cover disposed around the first and second sensors.

1 5. The vehicle tire monitoring system of claim 1 wherein the
2 sensor assembly is disposed on a drop center portion of the wheel.

1 6. The vehicle tire monitoring system of claim 1 wherein the
2 second sensor is a hall effect sensor that detects detachment of the sensor assembly
3 from the wheel based on the position of the second sensor relative to a magnet
4 positionable proximate to the wheel.

1 7. The vehicle tire monitoring system of claim 7 wherein an
2 insulator is disposed between the magnet and the wheel to inhibit demagnetization
3 of the magnet.

1 8. The vehicle tire monitoring system of claim 7 wherein the
2 sensor assembly further comprises a bracket for positioning the second sensor
3 relative to the magnet.

1 9. The vehicle tire monitoring system of claim 8 wherein the
2 bracket includes an aperture located between the second sensor and the magnet.

1 10. A vehicle tire monitoring system for use with a wheel that is
2 configured to have a tire mounted thereon, the system comprising:

3 a sensor assembly mountable on the tire, the sensor assembly including
4 a first sensor for detecting a tire parameter and a second sensor for detecting
5 proximity of the sensor assembly to the tire based on the position of the second
6 sensor relative to the tire.

1 11. The vehicle tire monitoring system of claim 10 wherein the
2 sensor assembly is disposed on the tire using an adhesive.

1 12. The vehicle tire monitoring system of claim 10 wherein the
2 first and second sensors are mounted on a circuit board.

1 13. The vehicle tire monitoring system of claim 10 further
2 comprising a protective cover disposed around the first and second sensors.

1 14. The vehicle tire monitoring system of claim 10 wherein the
2 second sensor is a hall effect sensor that detects detachment of the sensor assembly
3 from the tire based on the position of the second sensor relative to a magnet
4 positionable proximate to the tire.

1 15. The vehicle tire monitoring system of claim 14 wherein an the
2 magnet is disposed on the tire using an adhesive.

1 16. The vehicle tire monitoring system of claim 14 wherein the
2 sensor assembly further comprises a bracket for positioning the second sensor relative
3 to the magnet.

1 17. The vehicle tire monitoring system of claim 16 wherein the
2 bracket includes an aperture located between the second sensor and the magnet.

1 18. A system for monitoring a pneumatic tire disposed on a vehicle
2 wheel, wherein the pneumatic tire and the vehicle wheel cooperate to define a
3 chamber surface, the system comprising:

4 a magnet disposable on the chamber surface; and

5 a sensor assembly disposable on the chamber surface proximate to the
6 magnet, the sensor assembly including a pressure sensor for sensing air pressure in
7 the tire and an attachment sensor;

8 wherein the attachment sensor is configured to detect attachment of the
9 sensor assembly to the chamber surface based on the position of the attachment
10 sensor relative to the magnet.

1 19. The system of claim 18 wherein the sensor assembly further
2 comprises a housing that receives the attachment sensor and the pressure sensor.

1 20. The system of claim 19 wherein the housing is disposed on a
2 bracket attached to the chamber surface.